

CLAIMSWHAT IS CLAIMED IS:

1. An asynchronous transfer mode (ATM) digital document delivery system, comprising:

5 a customer premise unit configured to permit a customer to order and receive a data stream;

10 a buffer coupled to the customer premise unit to store the data stream before transmitting the data stream to a customer;

15 a server having digital documents stored thereon for delivery to the customer through a switched ATM network; and

means for controlling a data rate of the data stream between the server and the buffer to ensure maintenance of a steady data stream from the customer premise unit to the customer during a loss of a physical layer between the server and the customer premise unit.

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2. The document delivery system, as recited in claim 1, wherein the customer premise unit includes the buffer therein, the buffer including a memory storage capacity sufficient to maintain the data stream to a customer for an amount of time.

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3. The document delivery system, as recited in claim 2, wherein the amount of time includes time needed to restore the physical layer.

4. The document delivery system, as recited in claim 2, wherein the amount of time includes up to 30 seconds.

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5. The document delivery system, as recited in claim 1, wherein the means for controlling includes a network control system coupled to the server and the customer premise unit, the network control system providing control for the data rate of the data stream to the customer premise unit from the server.

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6. The document delivery system, as recited in claim 5, further comprising a multiplexer coupled between the customer premise unit and the network control system, the multiplexer including a signaling mechanism to alert at least one component that the physical layer is lost.

7. The document delivery system, as recited in claim 6, further comprising virtual circuits set up between the network control system, the customer premise unit and the multiplexer to enable communication therebetween.

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8. The document delivery system, as recited in claim 1, wherein the server is configured to deliver the data stream at a rate greater than a normal rate after the physical layer has been restored.

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9. The document delivery system, as recited in claim 8, wherein the server is configured to deliver the data stream at the normal rate after the buffer has been filled.

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10. The document delivery system, as recited in claim 1, wherein the customer premise unit is configured to deliver the data stream at a rate less than a normal rate when the physical layer is lost.

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11. A method for maintaining a data stream over an asynchronous transfer mode (ATM) network, comprising the steps of:

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providing a customer premise unit configured to permit a customer to receive a data stream;

storing a portion of the data stream in a buffer before transmitting the data stream to a customer;

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transmitting the data stream from a server through a switched ATM network; and

controlling a data rate of the data stream between the server and the buffer to ensure maintenance of a steady data stream from the customer premise unit to a customer during a loss of a physical layer between the server and the customer premise unit.

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12. The method as recited in claim 11, wherein the step of controlling a data rate of the data stream includes maintaining an amount of data from the data stream in the buffer to continue data flow to a customer for an amount of time after the loss of the physical layer.

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13. The method as recited in claim 12, wherein the amount of time

includes time needed to restore the physical layer.

14. The method as recited in claim 11, wherein the step of controlling includes employing a network control system coupled to the server and the 5 customer premise unit, the network control system providing control for the data rate of the data stream to the customer premise unit from the server.

15. The method as recited in claim 14, further comprising a multiplexer coupled between the customer premise unit and the network control system, and 10 further comprising the step of: when the physical layer is lost, signaling from the multiplexer to alert at least one component that the physical layer is lost.

16. The method as recited in claim 14, further comprising the step of 15 setting up virtual circuits between the network control system, the customer premise unit and the multiplexer to enable communication therebetween.

17. The method as recited in claim 11, further comprising the step of 20 delivering the data stream from the server at a rate greater than a normal rate after the physical layer has been restored.

18. The method as recited in claim 17, further comprising the step of delivering the data stream at the normal rate after the buffer has been filled.

19. The method as recited in claim 11, further comprising the step of 25 delivering the data stream from the customer premise unit to a customer at a rate less than a normal rate when the physical layer is lost.